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# Money and finance: the heterodox views of R. Clower, A. Leijonhufvud and H. Minsky

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# Money and finance: The heterodox views of R. Clower, A. Leijonhufvud and H. Minsky

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## Abstract

The heterodoxy of Robert Clower, Axel Leijonhufvud and Hyman Minsky consisted in dispensing with the dominant assumption according to which the system spontaneously tends to a situation of full coordination. In analysing the effective disequilibrium behaviour of the system, all three came to the conclusion that monetary and financial forces have a crucial importance for coordination and that their role can be highly destabilising. Contrary to the dominant theory, all three offer useful insights to understand what is happening today.

## 1 Introduction

If he had been an economist rather than a novelist, Gabriel Garcia Marquez would have written *Chronicle of a 'Crisis' Foretold*. The symptoms of the current turmoil had long been before our eyes. Many non-mainstream economists had been denouncing them for years.<sup>1</sup> In the last two decades of the twentieth-century, the transactions executed by the financial system—and, above all, the incomes distributed by it—had grown far faster than the real economy. With the tidal wave of liberalisation, financial techniques and innovations had become more and more unscrupulous. In its unshakeable faith in the market, the mainstream deliberately insisted on ignoring all of this and adhered to the assumption that financial markets are efficient and know their business. While admitting the key role of imperfections in macroeconomics, in 2000 Olivier Blanchard [1] famously and proudly wondered *What do we know about macroeconomics that Fisher and Wicksell did not?*

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<sup>1</sup> See, for example, the Working Papers of the Jerome Levy Economic Institute of Bard College, that are available online.

With all due respect, slogans are often dangerous, and now, some years later, we face the diametrically and dramatically opposite question: What did Fisher and Wicksell know about macroeconomics that we have ignored? More generally, what could heterodox views have taught the profession if it had been willing to listen? The present work naturally does not pretend to answer these crucial questions. Along the same lines, though, it reconsiders the contribution of three macroeconomists who—rowing against the current—have kept the faith (each in his own way) to the Keynesian revolution. From this perspective, the next three sections offer a retrospective on the thought of Robert Clower, of Axel Leijonhufvud and of Hyman Minsky. The last section concludes.

## **2 The contribution of Robert Clower**

Clower's key problem was the coordination of economic activity. He began by questioning the effectiveness of the price mechanism and the stability of general equilibrium (Section 2.1) and ended by reaffirming the crucial role of money in the economy (Section 2.2).

### **2.1 The price mechanism and failures of coordination**

When Clower came on the scene, the so-called Neoclassical Synthesis had reaffirmed the effectiveness of the price mechanism and the stability of general equilibrium. *The General Theory* concerned the special case of wage and price rigidities. Only general equilibrium theory could be considered truly *general*. Clower [3: 34–58] objected that the Neoclassical Synthesis had turned the truth on its head.<sup>2</sup> General equilibrium theory concerned only the specific case of full employment equilibrium. Assuming that this equilibrium was stable, the theory posited that disequilibrium states were transitory and unimportant and could accordingly be ignored. Keynes's 1936 work was just what its title promised: a truly general theory. By calling the assumption of stability into question, Keynes had recognised that disequilibrium states were not necessarily transitory and in the real world were the norm. To complete the Keynesian revolution, then, it was necessary to extend general equilibrium theory to disequilibrium situations so that the effectiveness of the price mechanism and the stability of the system could be analysed instead of simply taken for granted.

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<sup>2</sup> In Clower's view, the self-professed, ambitious Synthesis was actually a concealed Keynesian counterrevolution that first stripped *The General Theory* of its most original and most vital features, and then brought it back into the neoclassical fold.

Let us start with the stability of general equilibrium. In Clower's view, this was a dogma grounded on the primary, fundamental hypothesis that economic activity was perfectly and costlessly coordinated by an imaginary auctioneer, the anthropomorphic but nonetheless impalpable personification of the invisible forces of the market.<sup>3</sup> The postulate of constrained maximisation of utility by consumers and of profit by producers defined the traditional demand and supply functions, which Clower termed *notional*. On this basis, tâtonnement enabled the auctioneer to find the equilibrium price vector. So, it was the auctioneer that brought prices to their equilibrium level, ensuring the stability of general equilibrium. At this point the auctioneer himself gave the starting signal for exchanges, and the curtain rose on what was certain to be a happy ending. At equilibrium prices, every producer and every consumer would easily find his partner and fully realise his plans.

Unfortunately, in the real world there are no magic wands or magic gavels. So, Clower [3: 34–58] removed the auctioneer and looked at the more realistic case of transactions at non-equilibrium prices, in which individuals' plans cease to be mutually compatible. Under these circumstances, households are not generally able to realise their *notional* supply of labour. Given their budget constraints, they are forced to revise their planned demand for goods: the neoclassical assumption<sup>4</sup> of the *unified decision* yields to Clower's *dual decision* hypothesis. The result is actual or *effective* demand which, outside equilibrium, falls below traditional *notional* demand because it is conditioned by quantity as well as by price constraints. In Clower's view, this explained the link between consumption and income underlying the Keynesian multiplier. Traditional demand theory envisages only price constraints; it only holds in general equilibrium and cannot be extended to disequilibrium situations.

Clower's [3: 34–58] next step was to argue that prices are determined by *effective* demand, not by the *notional* demand of orthodox theory. Sellers are not interested in what consumers would like to buy if they could get the job they want, but what they can afford with the wages they are actually earning. Traditional *notional* excess demand, in this view, determined prices only when it coincided with actual excess demand, that is when prices were already at their equilibrium level. But this meant that traditional price theory too only held in general equilibrium and could not be extended outside it. As Clower wrote: "Orthodox price theory may be re-

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<sup>3</sup> We introduce the auctioneer at this point for the sake of expositional continuity, although Clower himself used the concept only later. In the *Counter-Revolution* [3: 34–58], he still referred to the law of supply and demand.

<sup>4</sup> We use the term neoclassical in homage to the Synthesis; it would be more proper to use the term neo-Walrasian.

garded as a special case of Keynesian economics, valid only in conditions of full employment” [3: 55].

In order to analyse the effective role of the price mechanism, Clower then took into account a disequilibrium situation in which the price vector is *wrong*. Specifically, he considered the case in which, other things being equal, the price level is lower – and consequently real wages higher – than the general equilibrium level. With this *wrong* price vector, the economy experiences a *notional* excess supply of labour and a *notional* excess demand for goods. Since households’ actual income is less than the *notional*, actual demand for consumer goods also must fall below the *notional* level. It might then happen that actual demand will align with *notional* supply. In this case, the price level would remain constant instead of rising to the *right* level required to clear the goods market and the labour market simultaneously. By contrast, the excess supply of labour would drive wages below their equilibrium level. Although perfectly flexible, prices considered as a whole would fluctuate in the wrong direction, thus failing to bring the system to its general equilibrium. *Effective* demand would constrain economic activity below the full-employment level. Instead of tending to its general equilibrium, the economy would be trapped in a Keynesian under-employment equilibrium.

These results led Clower to a fundamental change of mind. The removal of the auctioneer irreparably undermined traditional demand theory, traditional price theory and the stability of the general equilibrium. In his own words:

“I shall be the last one to suggest that abstract theory is useless; that simply is not so. At the same time, I am convinced that much of what now passes for useful theory is not only worthless economics (and mathematics) but also a positive hindrance to fruitful theoretical and empirical research.” [3: 56]

In the absence of the auctioneer, the traditional theory had to be rewritten root and branch along the lines traced by Keynes.

The analytical difficulties involved in this task did not escape Clower:

“[O]ne would thus have to add to the usual price-adjustment equations an extra and highly complex array of rationing rules that would specify just which agents transacted precisely what quantities of each commodity in every conceivable state of the economic system.” [3: 256–266]

Looking at the real world, however, Clower [3: 81–89] overcame these difficulties. To purchase goods, individuals do not necessarily

have to be able to supply labour services or other goods. They need only have enough money. Put another way, the demand for goods is detached from the supply of labour and more generally of other goods. Expenditure is financed by money.<sup>5</sup> Thus, neither Say's law nor the neoclassical dichotomy holds. In a monetary economy, money itself inevitably influences *effective* demand, price behaviour and the stability of the system.

## 2.2 The crucial role of money

The *appearance* of money led Clower to reconsider general equilibrium theory. If exchanges take place at equilibrium prices, agents have no trouble in realising sale or purchase plans. But this would mean that all goods were liquid. Not by chance, neoclassical consumers can finance their purchases of goods indifferently with money or with the supply of labour or of other goods. In neoclassical theory, then, money was distinguished from other goods in name but not in function. General equilibrium theory consequently referred to a world of frictionless virtual barter [3: 81–89 and 107–122]. Yet this is totally unrealistic. The economy in which we live is a monetary economy subject to the restriction that “money buys goods and goods buy money, but goods do not buy goods” [3: 86]. This result raised a new question. Why is the real economy a monetary economy? After all, by imposing money as medium of exchange, a monetary economy is more restrictive than a barter economy. Before analysing the role of money, its very existence had to be justified. Here Clower [3: 90–106 and 123–137] pointed out that in the real world trade is not perfectly and costlessly orchestrated from above. It depends on free interactions between individuals and requires a search and bargaining activity that is anything but simple or cost-free. Unlike the virtual barter of general equilibrium theory, real exchanges involve transaction costs that Clower specified as a U-shaped function of the length of the transaction period.

It is here that exchange organisation comes into play. By reducing transaction costs, exchange organisation increases the welfare of individuals and of the society as a whole. More generally, the coordination of economic activity does not depend only on prices, as the established theory maintained, but also on institutions like the market and money. The market (conceived as a meeting place for all agents interested in exchanging a particular good) lowers the cost of finding a trading partner. Money (as means of payment)

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<sup>5</sup> This is the basis of Clower's dichotomised budget constraint, under which individuals purchase goods with the stock of money already accumulated and separately supply labour to replenish the money stocks, thus keeping real money balances at the desired level [3: 81–89].

eliminates the constraints of the double coincidence of wants and of the synchronisation of sales and purchases, thus also reducing trading costs. Outside the frictionless virtual barter underlying general equilibrium theory, money is all but neutral. Its introduction itself enables individuals to channel into productive activity labour and other resources that would otherwise be devoted to search and bargaining. Although a monetary economy imposes more severe restrictions than a barter economy, it also reduces agents' trading costs.

Having justified the existence of money, Clower turned to the analysis of its role. He [3: 90–94] recognised that, in the imaginary barter of general equilibrium theory, the quantity of money could only influence the absolute price level. In a monetary economy, however, demand for goods is *effective* only if 'it involves a combination of desire with money purchasing power' independently of when and how individuals procure it [3: 87]. In this case, however, the quantity of money will inevitably have an impact on *effective* demand, effective price behaviour and the effective workings of the system.

According to Clower, money is set apart from other goods by virtue of its being the sole medium of exchange. This is accordingly the criterion for determining what is money and what is not. In his view, the other traditional functions of money are secondary [3: 95–106 and 107–122]. Money would not be a store of value, for example, if it was not first of all a means of exchange. Observing how payments are actually made in the real world, Clower then defined money to include not only currency and bank deposits but also – and above all – trade credit. His conclusion was that the money supply is largely endogenous. In his view, the various components of the money supply are connected by pyramidal reserve ratios, with currency at the apex, currency-backed deposits in the middle, and currency- and deposit-backed trade credit at the bottom.

An expansion of economic activity would give rise to an increase in the endogenous components of the money supply, namely deposits and trade credit. In this way, it would alter the pyramidal reserve ratios. Above certain prudential thresholds, this could undermine confidence in the financial system, thereby provoking a flight from trade credit to deposits and from deposits to currency. Such a flight would trigger a credit crunch liable to drive the economy into recession. In short, due to the pyramid of reserve ratios, the endogenous nature of the money supply might aggravate the instability of

the system.<sup>6</sup> With the benefit of hindsight, all of this seems familiar.

Clower's contribution to monetary economics was thus to point out that, in a properly defined monetary economy, money is anything but neutral. Its introduction as a medium of exchange reduces trading costs and so favours coordination to the benefit of individuals and social welfare. The quantity of money affects expenditure and thus the behaviour of prices and the stability of the system. From this point of view, the endogenous component of money supply has a pro-cyclical behaviour that may prove to be destabilising. These conclusions fortified Clower's dissent from general equilibrium theory. To understand the real world, we have to jettison the distorting lens of traditional theory.<sup>7</sup>

“Strictly interpreted, neowalrasian theory is descriptive only of a fairytale world (...). It is science fiction, pure and simple – clever and elegant science fiction, no doubt, but science fiction all the same” [3: 252].

### 3 The contribution of Axel Leijonhufvud

Axel Leijonhufvud's starting point was Kenneth Arrow's illuminating question: in the neoclassical economy where everybody is a price-taker, who ever sets prices? In answering, it was Leijonhufvud himself who devised the metaphor of the auctioneer, reaching a position similar to that of Clower [3: 34–58]. Keynes did not introduce wage and price rigidity: he simply rejected the equally extreme assumption of perfect price flexibility.<sup>8</sup>

From his very first writings, Leijonhufvud adopted an intertemporal perspective based on Wicksell's saving-investment approach. In his way, he referred to Wicksell long before Woodford and his followers. On this basis, Leijonhufvud first showed that Keynes's involuntary unemployment was due to high interest rates, not high wages. This interest rate *maladjustment* in turn reflected speculators' ignorance of the future and was persistent in nature (Section 3.1). Next, he showed that money was indispensable to explain coordination as well as its failures (Section 3.2).

#### 3.1 Intertemporal effective demand failures

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<sup>6</sup> On the endogenous nature of the money supply and its destabilising effects, see Clower [3: 107–122 and 209–217].

<sup>7</sup> For a more detailed and complete analysis of Clower's contribution, see [4].

<sup>8</sup> So, Leijonhufvud too rejected the reductive interpretation of Keynes proposed by Keynesians of the Synthesis. That is why his famous 1968 book is entitled *On Keynesian Economics and the Economics of Keynes*.



The basic presupposition of Leijonhufvud's analysis was that—to move from Walras to Keynes—one did not need to deny the general equilibrium scheme but only to remove the auctioneer, i.e. the assumption of full information and coordination. Leijonhufvud accordingly took *equilibrium* as a synonym for *general economic equilibrium* and used it as an ideal benchmark on the basis of which to define economic pathologies.<sup>9</sup>

The core of his ideal equilibrium was the market for saving and investment out of full-employment income, considered respectively as the demand for and supply of future (rather than current) consumption goods. The real rate of interest (the relative price of current in terms of future goods) performs the function of coordinating the two, clearing the goods market. In financial terms, however, saving represents the demand for new securities and the supply of new loanable funds; investment, conversely, their respective supply and demand. Thus, assuming that the initial stocks are at desired levels, the real interest rate determined by the equilibrium of the goods market also clears the securities (loans) market. In homage to Wicksell, this common equilibrium value can be called the *natural* rate of interest.<sup>10</sup> Equilibrium in the labour and money markets gives, respectively, the full-employment real income and the level of prices. In line with the quantity theory, the system is dichotomous and money is neutral.

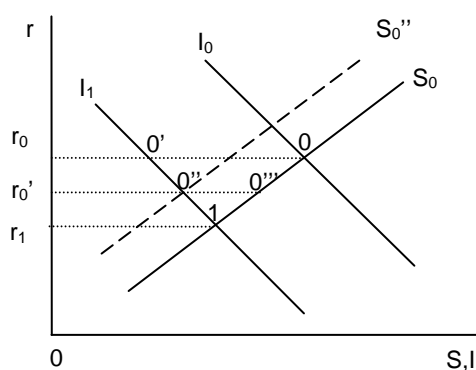
Let us now suppose that the initial full information equilibrium, corresponding to point 0 (the intersection between  $S_0$  and  $I_0$ ) in Figure 1, is hit by a typical Keynesian recessionary shock, namely a fall in the marginal efficiency of capital. The investment function shifts to the left (from  $I_0$  to  $I_1$ ), opening up an equal excess ( $00'$ ) of saving over investment, which in turn implies an equivalent excess supply of goods and excess demand for securities. The latter produces a rise in the prices and a fall in the yield of securities, driving the interest rate to the new, lower natural level,  $r_1$ . The system thus reaches the new full-employment equilibrium represented by point 1. In the ideal neoclassical world of full information, the flexibility of the interest rate instantly brings the system back into full employment equilibrium, even if the latter now implies a lower rate of capital accumulation and of growth.

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<sup>9</sup> From the methodological standpoint, however, this choice raises some doubts. In order to properly define coordination failures, we should refer to reality in its optimal conditions rather than to an ideal but non-existent world. Using the general equilibrium model as a benchmark, Leijonhufvud exposed himself to the risk of considering as normal what actually is artificial and as pathological what actually is normal. On this, see [5].

<sup>10</sup> For Leijonhufvud's saving-investment approach, we refer to [12] and to [13: 3–15 and 131–202].

Figure 1: The market for saving and investment



At this point Leijonhufvud abandons the *ideal* for the real world. His thesis is that when full information does not obtain, the rate of interest (albeit remaining perfectly flexible) falls to the *unnatural* level of  $r_0'$  in Figure 1, not all the way to the new equilibrium level of  $r_1$ . In Wicksell's terms, the market interest rate stays above the natural rate. What curbs the fall in interest rates is the financial markets' ignorance of the future. Not being directly involved in the process of production, the holders of securities have no way of sensing the fall in the marginal efficiency of capital. In homage to past experience, they therefore continue to consider the previous rate of interest,  $r_0$ , as normal. Expecting a rise in yields from  $r_0'$  to  $r_0$ , they sell part of their securities portfolio, neutralising the excess demand from savers. In clearing the securities market, however, speculators unbalance the money market. The excess supply of goods now implies an equivalent excess demand for money (rather than for securities). In line with the Quantity Theory, what now falls is nominal spending (not the interest rate).<sup>11</sup>

It is here that Keynes's quantity adjustments come into play,<sup>12</sup> turning the fall in nominal spending into a decline in real income and

<sup>11</sup> It is worthwhile noticing that the full-employment saving and investment functions might also intersect at a negative interest rate in Figure 1. In this case, the system would have no natural interest rate and no general equilibrium.

<sup>12</sup> In the absence of quantity adjustments, the destabilising interference of the speculators and the consequent interest rate maladjustment would have been only temporary. As their stock of securities is not unlimited, speculators cannot continue to sell them for cash indefinitely. In time, moreover, their expectations of a rise in the rate will be proven mistaken and they will be forced to adapt their views. To simplify, Leijonhufvud then assumes that the speculative sales of securities cease and give way to the quantity adjustments, as a result of which the maladjustment of the interest rate is detached from speculation and becomes persistent.

saving. The *effective* saving function ( $S_0''$ ) shifts to the left of the *notional* saving function ( $S_0$ ), bringing the system to the Keynesian unemployment ‘disequilibrium’ represented by point  $O''$ . Not only does the fall in income push employment below the full-employment level. Above all, it jeopardises the re-equilibrating role of the price mechanism. Becoming only *notional*, the excess of saving ( $O''O'''$ ) now ceases to be perceived by the market. The result is that prices fall in the *wrong* way. At point  $O''$  of Figure 1, savers’ demand for securities is equal to the supply. The market interest rate thus stabilises at the *unnatural* level  $r_0'$ . At the same time, the excess supply of labour cumulatively drives wages below the *right* value, aggravating the disequilibrium. Full price flexibility not only loses its equilibrating capacity, it becomes destabilizing.

Thus, in Leijonhufvud’s view, Keynes countered neoclassical *deviation-counteracting* price adjustments with *deviation-amplifying* quantity adjustments that are self-cumulating. The prototype of such processes is the Keynesian multiplier. As in Kahn, the multiplier tends to die out with time. Instead of imploding, the economy settles into a state of disequilibrium. The resulting involuntary unemployment does not necessarily posit a *false* price for labour. It might simply require a *false* price in one of the other  $n-1$  markets, for instance a *wrong* interest rate. If this is the case, wage and price flexibility is not a solution. By altering excess demands, quantity adjustments have defused and distorted its re-equilibrating properties, thus jeopardizing the tendency of the system to its general equilibrium.

### 3.2 The failures and successes of coordination

As we have seen, Leijonhufvud recognised the merit of *The General Theory* in introducing quantity adjustments and thus allowing for instability. But he rejected *The General Theory*’s second major innovation, namely the liquidity preference theory of interest rates.<sup>13</sup> This theory reversed the roles of the interest rate and of income in the adjustment process. In Leijonhufvud’s view, this reversal had two devastating consequences. By assuming that money market equilibrium determines the interest rate rather than income, the liquidity preference theory burns the bridge back to the *ancient and honorable Quantity Theory* [13: 132]. By assuming that goods market equilibrium determines income rather than interest rate, it severs all ties with Wicksell. Barring any tendency of the market rate to its natural level, however, means to deny any tendency of the system to its general equilibrium.

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<sup>13</sup> With this, Leijonhufvud admits the sensitivity of money demand to interest rates, but denies that the rate of interest is what clears the money market.

So, if in introducing quantity adjustments *The General Theory* admitted instability, in adding the liquidity preference hypothesis it ultimately negated the possibility of stability. Accordingly, Leijonhufvud rejected the liquidity preference theory, expressly accepting only half of the Keynesian revolution. A truly general theory, he argued, had to explain coordination, not only its failures. After all, the natural world offers many examples of this ambivalence. An exceptional wave may unbalance a boat and make it capsize. But if the wave is of normal magnitude, the boat is equipped to handle it and so gradually regains its equilibrium.

Drawing on Clower [3: 81–89], Leijonhufvud then revisited the Keynesian consumption function with a critical eye. Consumers actually accumulate adequate stocks of liquid assets (money) in order to stabilise consumption against fluctuations in income. Thus, in the case of a recessionary shock that is no longer or sharper than expected, the stocks of liquid assets (money) are large enough to sever the link between income and consumption and the related cumulative quantity adjustments. As a result, the traditional price mechanism can gradually re-equilibrate the system. In the exceptional case of a recessionary shock that is stronger or longer than expected, the stocks of liquid assets (money) are not large enough to sever the link between income and consumption. The multiplier comes into play, leading to Keynes’s unemployment disequilibrium and jeopardising the effectiveness of the price mechanism. The boat capsizes!

Leijonhufvud’s [13: 103–129] conclusion was that there is a *corridor* around the fully coordinated growth path. Starting from this path, if the economy is hit by a shock of normal magnitude and duration, it stays within the corridor. Thanks to the traditional price mechanism, it tends to come gradually back to the ideal path and keep to it. If the shock is too strong or too long-lasting, however, the economy is thrown outside the corridor. Now prey to Keynes’s deviation-amplifying quantity adjustments, it gets trapped in a Keynesian unemployment disequilibrium that price flexibility cannot remove. The *corridor* metaphor thus proposes a synthesis embracing both the ambivalence of real-world economies and the *contending views* of Keynes and the neoclassics. In this perspective, *The General Theory* continues to be more general, because it allows for quantity adjustments. Yet its contribution consists in adding the area outside the corridor, where the pathology of persistent unemployment dominates.<sup>14</sup>

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<sup>14</sup> This result seems to be a consequence of the use of general equilibrium as a benchmark. Once the neoclassical Olympus is cloaked in earthly normality, *The General Theory* is relegated to exceptional circumstances. The result is that in-

The *corridor metaphor* reflects the impulse-propagation approach. In other works, however, Leijonhufvud recognised that the destabilising tendencies may arise endogenously from the monetary and financial sector. In an article written with Clower [3: 209–217], for instance, he recognised the endogenous nature of the money supply and its possible destabilising effects. More recently, he has focused on financial instability and on its linkages with monetary policy [15].<sup>15</sup> Leijonhufvud was one of those who anticipated the recent financial turmoil long before it happened.

## 4 The contribution of Hyman Minsky

Hyman Minsky presented his *financial instability hypothesis* as an interpretation of Keynes's *The General Theory* and is generally seen as a leading Post Keynesian. Regardless of his Keynesian affiliation, Minsky was definitely a heterodox economist. This is witnessed by his rejection of the equilibrium approach (Section 3.1) in favour of a cyclical perspective (Section 3.2). Thus, while the neo-classical egg settles stably down on its side, Minsky's egg rolls endlessly and irregularly around in a permanent state of disequilibrium. As we shall see, money and finance play a crucial role in this perpetual motion.

### 4.1 The rejection of the equilibrium approach

Drawing his inspiration from Keynes [8,9], Minsky assigned a central role to the uncertainty arising from the ignorance of the future. Under these circumstances, what matters is not only expectations about the future but also the degree of confidence in them. As we shall see, money and finance catalyze the changing degree of confidence and pass it on to the real economy.

Let us start with money. By allowing the fulfilment of payment obligations associated with economic activity, money offers insurance services against bankruptcy. This is money's main function [26:180]. The value of these services (of money's liquidity) depends on the degree of confidence. As confidence increases, liquidity preference falls. In Minsky's view, money is not an alternative to consumption goods but instead to the other components of wealth. The decrease in liquidity preference thus leads to a reallocation of wealth from money to non-monetary assets. The higher demand for financial assets corresponds to an increase in the supply

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voluntary unemployment, the ineffectiveness of the price mechanism and the real effects of money become mere pathologies.

<sup>15</sup> Many of his recent works on the current financial crisis can be found in VOX, Research-based policy analysis and commentary from leading economists, available online.

of credit. The higher demand for capital assets raises their demand price above the supply price. These two prices represent the fulcrum of Minsky's transmission mechanism.<sup>16</sup> In line with *Tobin's*  $q$ ,<sup>17</sup> the excess of the demand over the supply price stimulates capital accumulation. Thus, thanks to money, greater confidence translates into a debt-financed increase in investment.

Let us now consider finance. In Minsky's view, advanced capitalist economies imply large and costly long-term investment that needs external financing. This presupposes the expectation that investment generates sufficient profits to service the corresponding debt. Given uncertainty over the future, however, this expectation can also prove mistaken and lead to insolvency. As a safety margin against this risk, firms and their financiers require an excess of the present value of expected profits (the demand price) over the cost (the supply price) of investment goods.<sup>18</sup> To this end, they hold externally financed investment below the level that would be optimal under conditions of certainty. In Minsky's view, it is here that confidence comes into play. An increase in confidence reduces desired safety margins on indebtedness,<sup>19</sup> increasing the availability both to lend and to borrow in order to invest. The result is an externally financed increase in investment. This time thanks to finance, the higher confidence turns again into a debt financed investment expansion.

The active role of money and finance is what underlies Minsky's *upward instability proposition*. Though generally neglected in the literature, this proposition seems to be a keystone in the entire Minskian construction. In his schema, tranquillity fosters greater confidence in the future. As we have seen, this decreases the value of the insurance (liquidity) embodied in the dollar and reduces the desired safety margins, which leads to a debt-financed increase in

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<sup>16</sup> For the two prices, see [10].

<sup>17</sup> On the  $q$  theory, see [2].

<sup>18</sup> If realised profits turn out to be less than expected, safety margins on indebtedness will increase firms' capacity to meet debt commitments and reduce bank losses. If realised profits are as expected or greater, safety margins on indebtedness represent the compensation to firms and their financiers for their respective risks.

<sup>19</sup> As we have seen, safety margins on indebtedness reflect the degree of confidence of firms and their financiers. In Minsky's view, they thus acquire a more general significance as proxy for the whole set of safety margins existing within the financial system. As an example, as confidence increases, the decrease in required risk premiums on indebtedness also signals, on the one hand, the fall in liquidity as a proportion of wealth and, on the other hand, the worsening in the time synchronisation between cash receipts and debt commitments that (as we shall see) is at the basis of the famous Minskian distinction between hedge, speculative and ultra-speculative or Ponzi finance.

investment.<sup>20</sup> Minsky's conclusion was that *stability—or tranquillity—is destabilising* and *the fundamental instability is upward*.<sup>21</sup>

Minsky applied this upward instability proposition to every *coherent* situation, be it under-employment equilibrium, full-employment equilibrium or steady growth.<sup>22</sup> On these bases, he did not merely reject these traditional kinds of *coherency*, he banished the equilibrium approach outright. Under the upward instability proposition, every situation nurtures forces for change, and these forces are directed upwards.<sup>23</sup> It follows that

“[t]he use of the term equilibrium...may be misleading. It may be best to borrow a term from Joan Robinson and call situations in which rapid disruptive changes are not taking place periods of tranquillity, noting that tranquillity is disrupted by investment booms, accelerating inflations, financial and monetary crises, and debt deflations.” [26:176]

Together with the equilibrium approach, Minsky obviously rejected the traditional re-equilibrating role of the price mechanism.<sup>24</sup> In his view, the latter had to be replaced by quantity mechanisms that are mutually cumulative. As a result, fluctuations in investment (the most unstable component of autonomous expenditure) produce amplified fluctuations in income. Minsky's theory is “an invest-

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<sup>20</sup> In Minsky's words [26:183]: “[B]ut tranquillity diminishes the value of the insurance (liquidity) embodied in the dollar, so that a rise in the absolute and relative prices of capital and financial assets that are valued mainly for income will take place. Tranquillity therefore leads to an increase in acceptable debt to equity ratios even as it raises the value of inherited capital assets. The endogenously determined value of liquidity means that each possible equilibrium of the economy contains disequilibrating forces”.

<sup>21</sup> For the two quotations, see –respectively– [21:127, 22:37] and [20:272, 21:165].

<sup>22</sup> About under-employment equilibrium, see [21: 61, 127, 165] and [22: 36–37]. More generally, according to Minsky, the upward instability proposition comes from Keynes himself [21:68]. For full-employment equilibrium, see [20: 268, 23: 26, 26: 177 and 183]. About growth, see [17, 19, 20].

<sup>23</sup> To quote Minsky [26: 129]: “Any transitory tranquillity is transformed into an expansion.” The concept is put forward repeatedly in his [23].

<sup>24</sup> Minsky [21, 22, 26] rejected the Patinkin resolution that flexible prices end up coordinating all the markets. According to him, in conformity with the experience of 1929–33 and the true thought of Keynes, the fall in prices can further depress aggregate demand and aggravate unemployment instead of reabsorbing it. The reason is twofold. To start with, wage and price deflation increases the real burden of debt. This may induce firms to reduce their borrowing, with depressive effects on investment. In addition, insofar as it is associated with a fall in profits, price deflation decreases firms' ability to honour past commitments. In this way it jeopardises the robustness of the financial system, with depressing effects on long-term expectations and investment.

ment theory of the business cycle” [22:30]. In this theory, as we shall see, money and finance are crucial: they trigger and feed Minsky’s cumulative processes, and also contribute to the reversal of their direction.

## 4.2 Minsky’s ‘financial instability hypothesis’

Minsky’s hypothesis presupposes a set of implicit assumptions whose generality would appear to be questionable.<sup>25</sup> Minsky himself may well have realised this, as is perhaps implicit in the very choice of the term *hypothesis* rather than *theory*. Here, however, we ignore these doubts, focusing on the crucial role of money and finance in the Minskian business cycle.

Let us then start with Minsky’s *upward instability proposition*. A period of tranquillity (in which the financial system is robust and there are no relevant shocks, so that profits are systematically greater than debt commitments) fosters confidence in the future. The result is a re-allocation of wealth from money to non-monetary assets and a fall in desired safety margins, which stimulate credit and capital accumulation. Thus, tranquillity leads to a debt-financed investment expansion.

Expansion in turn triggers cumulative processes based on the investment-profits-investment link. Through the increase in income, the rise in investment stimulates profits; the consequent improvement in profit expectations and confidence further increases investment itself. These cumulative investment-profits-investment processes are strengthened by the monetary and financial markets. In the growing optimism of the upswing, the speculative demand for money falls in favour of non-monetary assets. The increase in bank credit and in money supply further stimulates the demand for non-monetary assets. The ensuing rise in asset prices feeds itself through the expectations of capital gains. The consequent increase in wealth stimulates the propensity to borrow and to lend. In the case of capital assets, the rise in Tobin’s  $q$  and the fall in the safety

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<sup>25</sup> As an example, let us consider the upward instability proposition. This proposition seems questionable, especially at the lower turning-point of the business cycle. Following Minsky, let us assume that tranquillity decreases the value of the insurance embodied in money. What Minsky neglects is that, if expected profits were zero, this would not stimulate the demand for (the demand price of) investment goods. Alternatively, the stimulus might not be enough to drive the demand price above the supply price. In either case, investment would not rise and tranquillity alone would not be sufficient to trigger recovery. Moreover, the upward instability proposition cannot be attributed to Keynes as Minsky does in [21: 165]. After all, the main message of *The General Theory* seems to consist precisely in the possible persistence of the slump. On the perplexities raised by Minsky’s financial instability hypothesis, see [6].



margins needed boost externally-financed investment. All this feeds the cumulative investment-profits-investment processes, transforming the expansion into a debt-financed investment boom. At this point, Minsky points to two drawbacks to the boom. As investment increases, external financing grows proportionally more than internal, so the ratio between the two (the gearing ratio) incessantly rises,<sup>26</sup> driving up the incidence of debt commitments on profits. In the general euphoria, debt commitments end by rising above profits. In expectations of a future bonanza, firms begin to repay their principal by debt (speculative finance) and then even interest payments (ultra-speculative or Ponzi finance). The honouring of debt commitments no longer comes out of profits (hedge finance) but out of borrowing. Debt is rolled over (speculative financing) or compounded with interest payments (ultra-speculative or Ponzi financing).<sup>27</sup> As a result, the initially robust financial system turns fragile.<sup>28</sup> The second drawback is that the persistence of the boom inevitably generates either bottlenecks in the financial

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<sup>26</sup> Minsky's assertion on the gearing ratio is anything but granted. According to Steindl [27], for instance, internal funds have a higher income elasticity than external. As income grows, the rise in the desired gearing ratio is thus associated with a fall (not an increase) in the actual ratio. To bridge this gap, firms increase externally-financed investment, strengthening the income expansion. But this further widens the gap between desired and actual ratio. The main implications of Steindl's analysis are two. First, contrary to Minsky's theses, this time the actual gearing ratio moves counter-cyclically, falling in the upswing and vice versa. Second, this behaviour leads to the paradox of debt: the attempt to increase the gearing ratio implies an income expansion that instead decreases it. Lavoie [11] and Hein [7] reduce Minsky's and Steindl's views to a unitary framework. In assuming that firms meet their debt commitments before investing, however, these works exclude the speculative finance that was so central to Minsky.

<sup>27</sup> Minsky's famous distinction between hedge, speculative and ultra-speculative finance (or Ponzi) concerns the timing of cash receipts and cash commitments. In the case of hedge finance, creditors and debtors foresee cash receipts greater than debt commitments in every single period of the life of the loan. In the case of non-hedge finance, this holds only for the distant future. Given the expectation of a future bonanza, the plan concerning the present and the near future is to cover principal (speculative units) and interest as well (ultra-speculative or Ponzi units) by borrowing. Given their dependency on credit, speculative and ultra-speculative units are more fragile.

<sup>28</sup> Due to its over-optimism, the fragile financial system has allowed its safety margins to fall below the danger level; so even a minor shock can provoke financial crisis, debt deflation and insolvencies. See [18]. Specifically, firms would have insufficient liquidity, profits, and borrowing capacity to discharge their inherited debt commitments. Their only alternative would be to reduce debt and debt service by liquidating non-monetary assets. But the resulting fall in asset prices would imply the risk of selling them off and of becoming insolvent.

system or inflationary pressures in the goods market that require a monetary restriction. In either case, interest rate rise.<sup>29</sup>

The high interest rate ends the boom, reversing the investment-profit-investment chain into a downward spiral. The unexpected increase in the cost of funds is thus associated with an unexpected fall in already insufficient profits. Given financial fragility, honouring existing commitments would require increasing indebtedness still further; and more than undesirable, this is actually impossible, since the confidence that underpins borrowing collapses. Thus we have financial crisis, a situation in which [25] firms' debt commitments cannot be discharged in the ordinary way, i.e. out of profits (hedge finance) or by borrowing (speculative and Ponzi finance).

With the outbreak of the crisis, the only way to honour debt obligations is to sell assets, which after the boom are mainly illiquid. The increase in liquidity preference, the contraction in bank credit and in money supply and the expectation of capital losses reinforce asset sales and the decrease in asset prices. The resulting fall in wealth, together with the increase in desired safety margins, intensifies the need to reduce indebtedness by selling assets. Asset prices plummet. The fall in the price of real capital goods feeds back into investment and profits, and vice-versa.<sup>30</sup> Monetary and financial markets thus feed the downward spiral based on the real link investment-profits-investment. The financial crisis turns into a debt deflation, which in Minsky's framework also involves deflation of asset prices as well as profits [25].

In the end, the debt deflation makes it impossible to honour commitments, triggering a wave of bankruptcies, and ultimately deep depression. In Minsky's view, however, depression itself has also a cathartic role.<sup>31</sup> The only survivors are the hedge units (still able to repay their debt commitments out of profits). Under the upward instability proposition, a new phase of tranquillity is then sufficient to bolster confidence, reactivating the whole sequence: a new debt-financed expansion, speculative boom, financial crisis, debt deflation and depression. Minsky [24, 26] found empirical confirmation

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<sup>29</sup>Minsky [22: 45] puts it as follows: "However, the internal workings of the banking mechanism or Central Bank action to constrain inflation will result in the supply of finance being less than infinitely elastic leading to a rapid increase in short term interest rates". In Minsky's view, this increase will then spread from the short to the long run, with depressive effects on investment.

<sup>30</sup> In Minsky's view, while the fall in the demand price for capital goods (i.e., in the present value of expected profits) depresses investment and profits, the consequent fall in profit expectations reduces the demand price for capital goods.

<sup>31</sup> "However, it is worth noting that during the liquidation phase of a deep depression the financial stage is set for a long-wave expansion as debts are reduced, equity assets decline in value, and the stock of ultimate liquidity increases" [18: 325]. For an analogous concept, see [21: 126–127].

for his analysis in the real-world economy. To his own question *Can 'It' happen again?* Minsky [24] answered that another Great Depression was indeed possible.

On these presuppositions, Minsky assigned a crucial role to economic policy institutions. In his view, the central bank should concentrate on its function as a lender of last resort.<sup>32</sup> Funding financial institutions and sustaining asset prices, it might prevent or reabsorb financial crises, and so ward off debt deflation and depression. The task of stabilising and sustaining the economy, instead, should be assigned to government.<sup>33</sup> However, the financial system must also be carefully regulated, and the economic policy authorities themselves must always be on guard. Capitalism is an evolving system; its chameleon-like flaws are always in ambush. These are the main messages of Minsky's famous 1986 book: *Stabilising an Unstable Economy*.

Apart from the proper tasks of monetary and fiscal policies, Minsky [21,26] proposed a more general rethinking of the ultimate targets of economic policy, questioning the dominant myth of investment-led growth. Investment is a highly unstable component of aggregate demand; it may turn out to be a failure and compromise economic activity.<sup>34</sup> Growth does not converge on a uniform, steady rate. It jeopardises the robustness of the financial system and consequently tends to be shaken by financial crises, debt-deflations and depressions.

## 5. Conclusion

Axel Leijonhufvud's metaphor of the *Swedish flag* is a useful introductory approach to macroeconomic theory.<sup>35</sup> Starting with the

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<sup>32</sup> Minsky does not have much faith in monetary fine tuning: "Monetary policy to constrain undue expansion and inflation operates by way of disrupting financial markets and asset values. Monetary policy to induce expansion operates by interest rates and the availability of credit, which do not yield increased investment if current and anticipated profits are low" [26: 303–304].

<sup>33</sup> Specifically, "Fiscal policies are more powerful economic control weapons than monetary manipulations" [26: 304]. The government has not only the traditional function of sustaining and stabilising aggregate demand and employment, but also that of stabilising the financial system. By avoiding the rise in profits due to an investment expansion, automatic fiscal stabilisers might defuse the speculative boom and financial crisis. By sustaining profits above inherited debt commitments during a post-crisis investment slowdown, automatic fiscal stabilisers might blunt the tendency to a debt deflation and a deep depression [26].

<sup>34</sup> Bad investments may generate profits too small to repay debt and thus result in a wave of bankruptcies that depress economic activity.

<sup>35</sup> For the Swedish flag, see—for instance—Leijonhufvud [14: 3–32 and 33–51]. The flag reflects the impulse-propagation approach. The impulse is the initial shock. The propagation mechanism is the maladjustment that jams the re-

dichotomous nature of the ideal neoclassical world, both impulses and propagation mechanisms can be classified as either nominal or real. Combining the possibilities, we get a four-square table, which Leijonhufvud patriotically overlays on the Swedish flag. In his hands, the flag then becomes an instrument for describing the course of the macroeconomic debate in the twentieth century. By his reconstruction, the dominant macroeconomic theory made the full round of the flag, but lost sight of the economics of Keynes and of coordination failures.

The *Swedish flag* brings a key issue to light. Though assuming ever new and more sophisticated facets, the dominant macroeconomic theory has always referred to the benchmark of general equilibrium. According to the mainstream, this represents the state of health of the system, on which analysis must be focused. Deviations are pathologies of minor importance, a residue that can be tranquilly ignored.<sup>36</sup> With this, coordination was taken for granted. Economic policy, institutions, the rules of the game – these could only spoil the perfection of market mechanisms. Today we know just how big a mistake all of this was.

The merit of Robert Clower, Axel Leijonhufvud and Hyman Minsky consisted precisely in dispensing with the unrealistic assumption of full coordination. In analysing the effective disequilibrium behaviour of the system, all three came to the conclusion that monetary and/or financial forces have a crucial importance for coordination and that their role can be highly destabilising. Contrary to the dominant theory, all three offer useful insights to understand what is happening today.

Specifically, the current financial turmoil seems to validate Minsky's thesis that instability mainly lurks in the financial sphere of the economy. Paradoxically, however, Minsky's view is also the most optimistic. Under his upward instability proposition, after the storm comes the calm, and tranquillity inevitably brings recovery. In the framework of Leijonhufvud and Clower, by contrast, the slump can also be persistent. In Leijonhufvud, this persistency represents the exceptional case of an economy that has gotten outside the *corridor*. For Clower – as for Keynes – this persistency may (and tends to) be normal.

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equilibrating mechanisms of the general equilibrium ideal world, translating the shock into fluctuations in real income and employment.

<sup>36</sup> According to the transcript of his talk, Robert Lucas claimed [16]: “The problem is that in the new theories, the theories embedded in general equilibrium dynamics of the sort that we know how to use pretty well now, there is a residue of things they don't let us think about. They don't let us think about the US experience in the 1930s or about financial crises and their real consequences in Asia and Latin America”.

What can we conclude about money and finance? According to Clower and Leijonhufvud, their main role consists – respectively – in constraining and containing expenditure and economic activity below their full employment levels. This is in line with Keynes’s belief that capitalism tends to stagnation. According to Minsky, by contrast, the fundamental instability of capitalism is upward.<sup>37</sup> Finance, however, sets limits to this tendency. Minsky’s main merit seems to consist precisely in showing that growth does not converge to a uniform and constant rate, but leads to financial fragility and financial crises.

From a European perspective, the Minskyan upward instability seems ‘difficult to swallow’. It, however, might also be questioned from an American perspective. After all – in spite of the support from technological innovation in the 1990s and from the Fed’s expansionary policy in the 2000s – the American economy has failed to avoid a new depression. The re-reading of the financial instability hypothesis in the light of Keynes’s ‘stagnationist’ approach might then reconcile our three authors. From this perspective, Minsky’s contribution would consist in showing that finance can sustain and prolong growth, but not prevent (indeed, even accentuating) the collapse.

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<sup>37</sup> Thus, the main concern is the tendency of capitalism to under-investment in the case of Keynes and to over-investment in the case of Minsky.

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